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## Fighting never pays

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**QUESTION:** A 24-year-old man has a swollen and painful finger (see figure). He states that he was in a fight the night before but does not recall the details because he was intoxicated at the time.

Physical examination shows limited flexion at the proximal interphalangeal joint. No pus can be expressed from the wound on the finger. The patient's temperature is 100.5°F (8°C).

What is the cause of the finger wound, and what are the possible complications of this condition? What is the appropriate treatment?

Swollen and painful finger

**ANSWER:** The patient sustained a human bite, or clenched fist injury, as a consequence of punching his opponent in the mouth the previous evening. The hand is the most common site for human bite injuries in men. In women, the most common site for such injuries is the breast.

Complications that may result from this type of injury include septic arthritis, osteomyelitis, infection of tendon sheaths, and a persistent infection leading to the need for amputation. It is possible that the patient may not regain full mobility of this proximal interphalangeal joint.

### ORGANISMS AND ANTIBIOTICS

The organisms involved in human bite injuries include *Streptococcus* species, *Staphylococcus aureus*, and *Eikenella corrodens*. Amoxicillin/clavulanate (Augmentin) may be started early and given orally for 5 days to prevent an infection. Once the infection is established, intravenous administration of antibiotics is often needed. Gram stain and wound culture help guide the choice of antibiotics, but without knowledge of the organism and its sensitivities, empiric choices include ampicillin/sulbactam or cefoxitin.[1] If the infection does not respond to antibiotics, one should consider involvement by methicillin-resistant *S aureus*.[2] Rabies prophylaxis is not routinely needed in the treatment of human bites.

### IMAGING

Plain film radiographs should be obtained to look for a fracture or evidence of osteomyelitis. Because osteomyelitis may escape detection using plain film radiography, a radionuclide bone scan should be considered when the infection does not respond to the initial treatment.

### SURGICAL INTERVENTION

Referral to a hand surgeon for consideration of irrigation, debridement, and surgical exploration is appropriate. In a prospective study of 29 human bite injuries caused by the clenched fist, less morbidity was noted in those cases in which the joint was not involved. Early surgical exploration is recommended to identify and treat possible joint injuries.[3]

### OTHER TREATMENT METHODS

Hand elevation is an important aspect of treatment of clenched fist injury. During the day, elevation may be accomplished by using a sling. A special splint may be fashioned to keep the hand elevated during sleep.

Because the patient's last tetanus vaccine was over 5 years ago, he was immunized with tetanus/diphtheria toxoids. He did not need tetanus immune globulin because he had had a full primary series of tetanus vaccines as a child.

### OUTCOME

The patient was admitted to the hospital, and he responded well to intravenous ampicillin/sulbactam and hand elevation. The plain film radiographs showed no evidence of fracture or infection, and surgical exploration showed no joint involvement. Physical therapy consultation was provided to prescribe range of motion exercises. Despite these efforts, the patient did not regain full mobility of the affected joint.

References

1 *The Sanford Guide to Antimicrobial Therapy*. Hyde Park, VT: Antimicrobial Therapy Inc., 2000.
2 Berlet G, Richards RS, Roth JH. Clenched-fist injury complicated by methicillin-resistant *Staphylococcus aureus*. *Can J Surg* 1997;40:313-314.
3 Phair IC, Quinton DN. Clenched fist human bite injuries. *J Hand Surg [Br]* 1989;14:86-87.